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BOOK REVIEW

MONOGRAPHIE DES "ANILLINI," BEMBIDIIDAE ENDOGÉS (COLEOPTERA TRECHIDAE). By René Jeannel. Mémoires du Muséum National d'Histoire Naturelle (Paris), n.s., Sér. A., Zoologie, t. 28, fasc. 2, pp. 33-204, 360 figs., 1963.

In the inimitable way in which he can view a world fauna and draw generalizations from it, Jeannel has monographed the tiny, soil-inhabiting carabids of the subtribe Anillina (Bembidiini). Although he published a major paper on the group in 1937 (*Rev. français d'Ent.* 3:241-394, 245 figs.) and reviewed the African and Madagascan genera in 1957 (*Ann. Mus. Congo Belge, Zool.*, 52, 68 pp., 91 figs.), the availability of much additional material prompted a complete revision. Anillines are very small (1-2 mm), testaceous, wingless, and usually eyeless. They occur almost exclusively in deep humus or soil in forests of the temperate zones or at high elevations in the tropics. Material is rare because most anillines are highly localized and because the special techniques of the soil zoologist are required to collect large series.

An earlier classification of the anillines into Anillina and Scotodipnina, based on the umbilicate (marginal) series of setiferous punctures of the elytra, has been abandoned. Although the umbilicate chaetotaxy is still important, Jeannel now believes that the presence (Aphaenodontes) or absence (Phanerodontes) of a tooth on the mentum provides a more natural basis for establishing a primary subdivision. As is his custom, Jeannel has grouped supposedly related genera into phyletic series, of which there are eleven for the anillines. Forty-two genera and 137 species are recognized. Twenty genera were previously proposed by Jeannel himself, and he establishes 9 more here. Generic boundaries seem well chosen, even though the average number of species per genus is low (15 genera are monobasic), and the geographic distributions of the genera are rather restricted. When more specimens have been collected, future revisions will certainly be necessary, but they will probably not result in any substantial reduction in the number of genera or species.

Both ecological and taxonomic evidence suggest a very low mobility for anillines. The pattern of generic distribution indicates appreciable antiquity with intermediate extinction for most of the lineages of the subtribe. Jeannel regards the anillines as relics of eyed, winged carabids inhabiting the humus of the Cretaceous forests. During the cooling, drying trend of the later Cenozoic they became adapted to an endogenous mode of life, losing eyes and wings and becoming stenohygrobic in the process.

The known anillines are most numerous and varied in Europe, Africa, and the Indo-Australian region. They are notably absent from glaciated regions of the Northern Hemisphere and from eastern Asia, and are rather poorly represented in the Americas. In the continental United States there are now 4 genera—*Anillinus* Casey (6 spp., southeast), *Anillodes* Jeannel (4 spp., Texas and California), *Anillaspis* Casey (2 spp., California), and *Micranillodes* Jeannel (1 sp., Texas).

This revision opens the way for a more intensive investigation of a difficult but potentially rewarding group of beetles. Although much shorter than Jeannel's classic, exhaustive "Monographie des Trechinae" (*L'Abeille*, 1928-30), it is fully comparable in depth, and will stand as the definitive work on the anillines for years to come.—THOMAS C. BARR, JR., University of Kentucky, Lexington, Kentucky.